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Title: MAC-Level Communication Time Modeling and Analysis for Real-Time WSNs

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Abstract: Low-level communication protocols and their timing behavior are essential to developing wireless sensor networks (WSNs) able to provide the support and operating guarantees required by many current real-time applications. Nevertheless, this aspect still remains an issue in the state-of-the-art. In this paper we provide a detailed analysis of a recently proposed MAC-level communication timing model and demonstrate its usability in designing real-time protocols. The results of a large set of measurements are also presented and discussed here, in direct relation to the main time parameters of the analyzed model.

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